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FACULTY WORKING  
PAPER NO. 1215

Cognitive Taxonomies in a Retailer's  
Understanding of the Competitive Environment

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Understanding of the Competitive Environment

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## ABSTRACT

This paper explores how strategists develop cognitive frameworks to make sense of competition and competitive environments. Using principles of categorization developed in cognitive psychology and anthropology, and evidence from research in retailing strategy, the authors generate a number of propositions linking cognitive taxonomies with the formulation of competitive strategies. It is argued that these propositions lay the groundwork for the further development of cognitive classification schemes in competitive strategy research.



Competitive strategy in retailing can be roughly defined as the placement of a firm in relation to other retailers in such a way as to exploit a profitable niche in the marketplace (e.g., Duncan, Hollander, & Savitt, 1983). However, the relation between one firm and another is not given to the decision-maker as an objective fact. Rather, it is discovered, defined, and labelled by the retailer who uses an implicit understanding of the retailing environment to make sense out of business opportunities. We assert that a central component in this "implicit understanding" is a mental scheme that categorizes and classifies the varied assortment of retailing businesses that exist in the marketplace. The use of such a scheme permits the decision-maker to distinguish between those businesses that are potential "competitors" and those that are not. In this way, it becomes possible for the decision-maker to devise coordinated strategies which minimize competitive threats.

The purpose of this paper is to explore some of the psychological principles which determine how retailers make sense out of their competitive environments. We draw heavily from current research in cognitive psychology and anthropology to address two fundamental questions regarding the sense-making process. First, what are the essential features of the mental categorization schemes used by decision-makers when interpreting the structure of the retailing environment? Second, how do such schemes influence and/or constrain the decision-maker's implicit competitive strategies? In entertaining these questions, we argue that retail managers partition the environment into commonly accepted categories of business such as "retailers of goods," "grocery stores," "discount clothing shops," and so forth. Such categories, we suggest, are "fuzzy sets" with indefinite boundaries that are organized

hierarchically into "cognitive taxonomies." We propose that it is from a retailer's cognitive taxonomy that the elements of a competitive strategy are derived. In short, we posit that a retailer's understanding of the competitive conditions stems from a mental model of the structure of the retailing environment.

At the outset, it is important to note two important differences between our treatment of competitive analysis and the dominant theoretical tradition in the strategic management literature. First, currently popular treatments of strategic choice (e. g., Porter, 1980; Day, 1984) are motivated largely by a fruitful union of marketing and economic theory. The orientation is focused upon the structure of the macro-industrial environment as an explanation for the actions of individual firms. Firm competition is analytically defined on the basis of theoretical criteria such as product line, manufacturing processes, degree of vertical integration, size, and so on (e. g., Hofer, 1975; Porter, 1980; McGee & Thomas, 1985). Individual decision-makers are of concern only insofar as they are responsible for implementing actions dictated by the competitive structures so defined. In contrast, our focus is upon the individual decision-maker looking out onto a complex industrial scene and using intuitively derived conceptual schemes to make sense of it all. Thus, rather than a focus upon the environment, we examine the psychological principles which are involved in coming to understand the environment.

Second, our emphasis is descriptive rather than normative. One dominant trend in strategic management theory is toward building models which prescribe how industries and more restricted competitive groups should be defined on the basis of scientifically sensible criteria. Once such models are constructed, decision-makers are then advised regarding the appropriate strategic moves



for their business to take. In contrast, in this paper we suspend judgment regarding the normative desirability of analytic models of competitive strategy and instead focus upon how decision-makers actually go about competitive analysis. Our attempt is to describe the psychological bases of decision-maker perceptions rather than to impose a normative framework. Given the fact that many of the normative models of strategy are offered by scholars as an aid to making sense out of a world of complexity, this goal seems appropriate. Rather than focusing upon the mind of the academic, however, we focus upon the mental models of the retailing practitioner.

We begin our analysis by first discussing the problems faced by a retailer when interpreting the business environment and deciphering it's underlying organization. Our point will be to advance a psychological model of "attribute contrast" as a basis for explaining how retailers scan the environment and differentiate one business from another. At the same time, we will argue that the attribute contrast model, while valuable in simple form, cannot fully explain the details of intuitive competitive analysis. We therefore propose slightly more complex cognitive principles -- specifically, the notion of "cognitive taxonomy" -- to handle perceptual competitive groupings in retailing. Finally, we use this approach in examining how retailers might use mental classification schemes to identify and monitor their most salient competition.

#### THE RETAIL DECISION-MAKER IN A COMPLEX ENVIRONMENT: ATTRIBUTE CONTRASTS AND THE NEED FOR CLASSIFICATION

To the decision-maker attempting to chart a competitive strategy, the retailing environment presents a double-sided problem. On the one hand, the size of the industry (in terms of both total industry sales and the



number of firms) ensures considerable diversity. Retail businesses vary along any number of relevant dimensions, such as the type and selection of merchandise offered, product positioning, the amount and kind of customer service, pricing, location, geographic scope, organizational structure, form of ownership, attitudes of sales staff, ambience of display areas, image, and so forth. At the same time, the low cost of change on many of these dimensions implies that, despite this diversity, a great deal of imitation will probably occur from firm to firm -- ensuring a certain degree of inter-firm similarity. Large department stores can and do carry the same merchandise as that offered in smaller shops, and small shops can, given sufficient resources, open mail order businesses similar to those of catalog companies. These dual qualities of diversity and fluidity suggest that the retail industry is highly competitive and fragmented.

A dominant response among retailers to these environmental constraints has been to pursue so-called strategies of "enterprise differentiation." As it applies to retailing, enterprise differentiation is a competitive philosophy ". . . by which each retail firm attempts to offer a unique set of goods and services to customers and at the same time make certain that these customers view that retail operation as different" (Duncan et. al., 1983, p. 8). In it's most reduced form, the strategic pursuit of differentiation involves three interrelated tasks for the retail decision-maker, summarized in Figure 1. First, the retailer must monitor the environment

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to ascertain the characteristics of other retail businesses. It is at this stage that the decision-maker must categorize the various retail businesses in the environment and identify "the competition." Next, he/she must discover,

invent, or copy a business strategy involving a mix of merchandise, service, location, etc. that profitably differentiates his/her own business from those of other retail firms. Finally, the differentiation strategy must be implemented successfully and impressed upon the mind of the consumer. Of course, these activities form a strategy-making cycle since all three must occur continuously over time if the business is to keep pace with the dynamic marketplace.

The results of the strategy-making cycle in Figure 1 have important implications for the identity of a retail firm, and the psychological demands placed upon the decision-maker are great. This is so because in a diverse and dynamic environment a strategy of enterprise differentiation implies that the firm's identity is constantly being called into question by the need to change. Does, for example, a tavern owner who has decided to differentiate his business from other pubs by adding a luncheon and dinner selection continue to view the business as a tavern, or does he begin to define the firm as a restaurant? Moreover, does the tavern owner continue to monitor only other pubs to keep up with the competition, or does he begin to examine restaurant trends as well? The strategy-making cycle in Figure 1 demands a continual re-evaluation of the relationship between the decision-maker's own firm and others in the retail environment.

From a psychological perspective, "self-other" judgments such as these become descriptively more tractable by considering retailing businesses in their most fundamental form; namely, as clusters of information-rich attributes presenting themselves to observers. Figure 2 illustrates schematically what this sort of description entails. The strategically relevant differences

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insert Figure 2 here  
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among retail establishments are essentially differences in the various attributes they possess. For present purposes, the notion of "attribute" can be considered very broadly (but see Garner (1978) for a more extensive discussion). Some attributes are discrete properties, such as the presence or absence of a certain type of merchandise, or the availability of customer credit. Other attributes are qualitative or quantitative dimensions along which a retail business assumes a value, such as size of store or number of sales clerks employed or quality of service. Some attributes are relatively concrete, such as store lighting; others are more abstract and intangible, such as sales staff attitude. It is the aggregate of its salient and relevant attributes that endows a retailing establishment with a unique identity in the environment. Moreover, the degree of attribute overlap between one business and another is a useful metric for comparing their essential qualities. Generally speaking, two or more retail businesses can be considered similar if they share large numbers of attributes, and dissimilar when the overlap is small or nil.

Using this analysis, the strategic cycle of enterprise differentiation can be recast in terms of the logic of the attribute contrast approach. The environment presents itself to the retailing decision-maker as a collection of "attribute clusters" (that is, retail establishments). It is the task of the decision-maker to scan such information and decipher the degree of overlap between his/her own business and others in the focal marketplace. Retail business differentiation is evident when the decision-maker is able to add or subtract attributes from his/her own business in such a way as to satisfy uniquely a profitable customer need; in other words, in a way that establishes a profitable degree of attribute dissimilarity with other retail businesses. Hence, ". . . competition in retailing is related to the active pursuit of differences among what generally appear to be similar



types" (Duncan et. al., 1983). Henderson (1979) terms this type of strategy "isolating the battlefield" in a search for a sector of competition.

Many of the psychological demands entailed in strategies of enterprise differentiation stem from the necessity of conducting continual attribute comparisons in order to remain competitive. The simple case of contrasting one's own firm with another is not very problematic. Judgments of similarity and dissimilarity have been studied extensively (e.g., Tversky, 1977; Tversky & Gati, 1978), and binary contrasts between sets of attributes appear to be well within the range of human information-processing capabilities. Thus, in an environment containing only a few other firms, attribute comparisons should present no unusual informational burden to the decision-maker. Unfortunately, the retail industry is hardly characterized by simplicity. Because the number of firm-by-firm attribute comparisons multiplies exponentially as the number of firms increases, the massive number of binary comparisons required to monitor the typical retail environment makes such comparisons difficult if not impossible. Well-known limits to human cognitive resources (e.g. March & Simon, 1958; Kahneman, 1973) would suggest that it is highly unlikely that a complete firm-by-firm attribute analysis could ever occur in practice. Although the decision-maker might impose cognitively-driven limitations on the number of firms being compared, a purely arbitrary selection of businesses to compare to his/her own is likely to be counterproductive in the long-run. Pure random sampling is psychologically inefficient if there exists enough similarities among firms in the environment to group them into informationally more reasonable clusters.

Instead, we suggest that retail decision-makers order their environments in sensible ways by using implicit classification schemes that group retail

businesses into useful conceptual categories based upon firm similarities. Once formed, such schemes make it possible to compare and contrast the typical attributes of classes of businesses rather than the idiosyncratic attributes of all individual firms. Using a priori categorization schemes permits a simplification of the environment and allows the retailer to narrow the focus of environmental scanning to those classes of businesses that are most strategically related to his/her own. It is the nature of these cognitive categorization schemes that we examine next.

#### ORDERING THE RETAIL ENVIRONMENT WITH COGNITIVE TAXONOMIES: BASIC ISSUES AND EXAMPLES

The above analysis makes clear that the retail decision-maker is faced with the complex task of summarizing a diverse and often fragmented environment. As in all summarization tasks, the goal must be to balance richness with simplicity of description. On the one hand, the varied assortment of retail businesses, each possessing a unique collection of potentially important attributes, presents a valuable source of information to the creative manager wishing to gain a competitive edge. Attending to as many idiosyncratic characteristics as possible of as many firms as possible would thus seem to be worthwhile. On the other hand, the infinite differences among large numbers of firms must be reduced in some way to cognitively usable proportions. It is in striking this balance that cognitive classification schemes become important.

Of course, the suggestion that firms are organized into categories of a more abstract nature is not new to strategy research. Many researchers (e.g., McGee & Thomas, 1985; Porter, 1980) have viewed an industry as a collection of strategic groups, with each group consisting of firms which are highly similar in their strategies. Hawes and Crittenden (1984), for



example, used cluster analysis to form four major strategic groups for retailing strategies in the generic supermarket industry. However, instead of making sense of retail environments through the use of statistical cluster analysis, using the researcher's conceptions of attributes to be included in the sample, we argue that a combination of perceptual data drawn from individual decision-makers (e.g., Dess & Davis, 1984) and the economic models of competition should enable a more general framework for identifying competitive positions and the strategies that develop among retail firms.

#### The Principles of Cognitive Categorization: Lessons from the Human Sciences

When examining the nature of cognitive categorization schemes in retailing, it is necessary to confront two related issues. First, one must describe how it is that individual businesses are grouped into more abstract categories. If "cognitive category" is roughly defined as a collection of retail businesses that are perceptually identified as similar to each other and different from those not included in the category, this issue reduces to understanding the rules which transpose similarity judgments into more abstract groupings. Second, one must describe how categories, once formed, are related to each other within some cognitive context. Because these issues are fundamental to human categorization in any knowledge domain (and not just to retail decision-making), considerable psychological and anthropological research has been conducted during the past two decades to uncover the principles by which individuals classify aspects of their environment (see Rosch & Lloyd, 1978; Tyler, 1969). A general consensus about such principles has slowly emerged, and it is useful to review the essential findings.

With respect to the issue of how categories are formed, theory suggests that conceptual groups are created on the basis of the "cue validities" of the attributes of the objects, events, persons, etc. being categorized.

The cue validity of a single attribute as a predictor of a given category is a probabilistic index that increases as the frequency with which the attribute is associated with the category increases and decreases as the frequency with which the attribute is associated with other categories increases (e.g., Rosch & Mervis, 1975). The cue validity of a category as a whole is the sum total of the cue validities for each attribute of that category. A category with high total cue validity is, by definition, more differentiated from other categories than one with lower cue validity. That is, such categories are more informative about similarities and differences in the environment.

One particularly important finding that has emerged in recent years from psychological research is that cognitive categories seem to be "fuzzy sets" (Zadeh, 1965) with indefinite boundaries. It seems to be the case that no necessary and/or sufficient attributes of categories exist to clearly demarcate the members of one category from those of another. Instead, members vary in terms of how well they represent the category, with some members being highly representative (these are sometimes labelled the category "prototypes") and some less representative as borderline cases. Thus, for example, a "French restaurant" might be considered more typical of the general category "restaurant" than a "fast food restaurant." Category prototypes, when contrasted with less typical members, are learned earlier in the development of the category (Posner & Keele, 1968), are identified more quickly in naming tasks (Rosch, Simpson, & Miller, 1976), and are more frequently mentioned by people when asked to specify category examples (Mervis, Catlin, & Rosch, 1976).

With respect to the relationships between conceptual categories, there is a general consensus among theorists that categories, once developed, differ in terms of their degree of abstractness and form a hierarchical "cognitive taxonomy." According to Rosch (1978), a cognitive taxonomy is

". . . a system by which categories are related to one another by means of class inclusion. The greater the inclusiveness of a category within a taxonomy, the higher the level of abstraction. Each category within a taxonomy is entirely included within one other category (unless it is the highest level of category) but is not exhaustive of that more inclusive category" (p. 30).

Thus, for example, Kempton (1978) found evidence that individuals organize their knowledge regarding the common category "cup" with a conceptual taxonomic grouping of five hierarchical levels of inclusion. The category "utensils" was the most general grouping in the structure and specific types of cups such as "Chinese teacups" were the least inclusive.

An important finding in this area of research is that all levels of a cognitive taxonomy are not psychologically equivalent (Rosch, Mervis, Gray, Johnson, & Boyes-Braem, 1976). It appears that one level is more informative and more heavily used than others. Rosch et. al. label this the "basic level" of a cognitive taxonomy and suggest that

". . . the basic level of abstraction in a taxonomy is the level at which categories carry the most information, possess the highest cue validity, and are thus, the most differentiated from each other" (p. 383).

Rosch et. al. suggest that the basic level of a taxonomy is usually of an intermediate degree of inclusiveness, although the specific basic level can vary across domains of knowledge (e.g., Dougherty, 1978). Very general and inclusive levels of a taxonomy have lower cue validities than intermediate levels because general categories have few attributes common to all category members. Very specific levels of a cognitive taxonomy have lower cue validities than intermediate levels because such categories share most attributes with contrasting categories at the same level of inclusion. Ac-



According to Rosch et. al., intermediate levels of the taxonomy thus provide an individual with the most information about distinctions in the environment. Hence, basic categories are more psychologically efficient and are, for this reason, more likely to be used in everyday situations.

When applied to the case of retailing taxonomies, cognitive theory would thus suggest that conceptual groupings of retail businesses are fuzzy sets of firms classified as equivalent by the decision-maker because they share common attributes and are uniquely different from members of contrasting categories. Some members of each category of business should be perceived as more representative of the category than other, more borderline, cases. In addition, theory would indicate that the conceptual groupings of retailers are related to each other in taxonomic fashion by means of class inclusion. Although all levels of a retailer's taxonomy might provide some information about similarities and dissimilarities in the environment, one level would be expected to be more fundamental or basic because it is at this level that retail businesses are perceived as most differentiated from each other. We examine the plausibility of these suggestions in the next section.

#### Cognitive Taxonomies in Retailing: Evidence and Argument

Can the notion of a "cognitive taxonomy" help to explain how retailing decision-makers go about making sense of the competitive environment? Is conceptual knowledge about retailing businesses organized according to the principles discussed above? For the past year, we have been conducting research exploring the conceptual schemes of retailers in an effort to address these questions. We began with the assumption that common retail business categories such as "department store," "book store," "menswear shops," etc. are primarily conceptual groupings that have been formed by retailers to make sense out of the diversity of retail businesses -- i.e., to group according to perceived similarities and differences among firms.

As such, they should be organized in the mind of the retailer according to the general principles of cognitive categorization. Our research has been an attempt to ascertain whether this is indeed the case. Although our data are tentative and at this time incomplete, they are sufficiently developed to illustrate the potential merits of studying the cognitive classification of retail business. In this section, we report some of our findings.

The research was conducted in the community which serves as the site for the University of Illinois at Urbana-Champaign. The twin cities of Champaign and Urbana, Illinois are located in the rural heartland of the United States. Total county population numbers approximately 160,000 individuals as of 1980, most of whom live within 8 kilometers from the center of the university campus. The concentration of the population around a stable university base has meant that the community is relatively prosperous, with low unemployment and supporting a considerable variety of retailing businesses. Most such firms are small shops privately owned by one or a few individuals. Because of its rural setting, the retail environment in the community is relatively isolated from outside competition (no communities of comparable size are located within a radius of approximately 60 kilometers). Thus, area retailers compete principally among themselves for community business. Because of this, it can be assumed that environmental scanning and competitive strategy among the many merchants is focused locally, providing an excellent environment in which to study retail cognitive taxonomies.

As part of the study, local retailers (all of whom were owners, managers, or owner-managers of small firms) were contacted and asked to participate in a short interview concerning their "perceptions of the retail environment" in the area. Most agreed, and, if so, were interviewed in their place of business by a research assistant. The interview procedure itself was adapted from Kempton's (1978) work on the categorization of everyday objects. We



began with the most general root category of "Retailer" and asked one sample of respondents to list the next most general subtypes of this more global class. Responses to this task were coded and summarized, and all unique subtypes were used as focal categories for another sample of respondents who likewise were asked to list all the specific subtypes of a more general class. These responses were again coded and summarized. The sampling procedure was repeated, with successive samples of respondents providing more and more specific subtypes of more general categories, until several levels of a commonly accepted taxonomy of retail businesses in the area were generated.

Figure 3 diagrams a subcomponent of the complete cognitive taxonomy produced through the interviews. The root category "Retailer" was cognitively separated by respondents into "Retailer of goods" and "Retailer of services." The former category was subdivided into 25 more specific types of retailing businesses (see Table 1 below), three of which are reproduced in the figures: "Bar/Tavern," "Grocery Store," and "Confectionary Shop." Grocery stores were subdivided into nine subcategories, three of which were "Supermarkets," "Stop and Shop Convenience Stores," and "Oriental Food Stores." Finally, convenience shops were classified into those that sell gasoline and those that don't. The structure in Figure 3 thus possesses five taxonomic levels of increasing specificity. The numbers to the right of the structure are the sample sizes used to generate each specific level.

Figure 3 raises a number of questions related to the research and theory on cognitive categorization cited earlier. One question pertains to the internal structure of the categories in the taxonomy. In asking retailers to generate subtypes of more general cognitive categories, we requested that they use as a basis for categorization attributes related to merchandise of-

ferred, service, clientele, physical facilities, convenience, promotions, store atmosphere, and customer satisfaction. Thus, in generating subtypes, respondents presumably engaged in a number of attribute contrasts of various category members and segregated on the basis of some rough intuitive measure of cue validity. On this basis, the categories listed in Figure 3 are classes that differentiate members from dissimilar non-members. However, if conceptual categories possess indefinite boundaries (Rosch & Mervis, 1975), some members of the categories in the figure should be perceived as more typical of the higher-level category than others. That is, there should be perceived differences in how well the businesses at one level of the taxonomy represent the category at the next highest level.

We examined this issue empirically at one level of Figure 3 by asking a separate group of 25 retailers to rate the degree to which they considered each of the 25 businesses at Level 3 in the taxonomy to be representative of the more general category "Retailer of Goods." One retailer from each of the 25 categories was included in the sample, and ratings were obtained on a 7-point scale varying from 1 = fits very poorly my idea or image of a retailer of goods to 7 = fits very well my idea or image of a retailer of goods. The means, medians, and standard deviations of these ratings are listed in Table 1. As can be seen, average and median ratings varied from a high of 5.9 (6.3) for the category "Department Store" to a low of 3.4 (2.8) for "Real Estate Broker." Clearly, differences in representativeness were perceived. This finding is even more striking given the fact that the subtypes of the category "Retailer of Goods" were generated through interviews with retailers similar to those rating representativeness. Since frequency of mention of category members has been found to be positively related to the degree of member representativeness (Mervis et. al., 1976), it is to be expected that the subtypes listed in Table 1 would be perceived as at least

somewhat representative of a retailer of goods. This seems to be the case given the fact that most of the 25 subcategories had mean ratings of "5" or more.

One unexpected result from the above data indicated that respondents, in general, rated their own businesses as more representative of a retailer of goods than did respondents from other businesses. Since each of the 25 types of retail firms was represented in the sample of respondents (this was verified by having respondents denote the one business type that most closely approximated that of their own), it was possible to compare self-ratings with the ratings of others simply by determining whether self-ratings were above or below the median ratings of the entire sample of 25 respondents. If no relationship existed between ratings of representativeness and one's own membership in a category, by chance alone it would be expected that 50% of the ratings would be above the median rating and 50% below it. In fact, 17 of 25 ratings of own business representativeness were above the sample median ( $\chi^2=9.0$ ,  $p$  less than .05). Perhaps the most extreme cases are those of automobile dealers and real estate brokers. While both had very low median ratings of representativeness in the sample of respondents, the owners of the businesses both rated themselves a "7" on the rating scale. Apparently, there is a tendency to perceive one's own business as representative of the category "Retailer of Goods." We have obtained similar results at other levels of the taxonomy in Figure 3 as well.

Another question raised by Figure 3 is whether all levels of the taxonomy are psychologically equivalent. According to theory, one level should be more "basic" than others. Again, Rosch et. al. (1976) suggest that "middle level" categories provide the most information about the environment because of their high cue validities. Although we have yet to generate data necessary for a rigorous test of this assertion as it applies to retailer taxonomies,



anecdotal evidence from our research suggests it to be reasonable. As part of our study, we asked groups of respondents to list as many attributes of the categories noted in Figure 3 as they could recall. Many of the respondents had difficulty listing meaningful attributes at the top two levels of the taxonomy and those attributes that were mentioned were very general, such as "sells things," and "has customers." Such difficulties and generalities could indicate that Levels 1 and 2 in the figure are not particularly informative of business similarities and dissimilarities in the environment. At the same time, Level 5 categories are highly similar to each other. In Figure 3, for example, the major differentiation between subtypes of convenience marts is the presence/absence of gasoline sales. It is not likely that this represents a very informative difference.

We suspect that the basic level in Figure 3 is one of the middle two levels, (3 or 4). It is at these levels that clearer differentiations were often made between the attributes of the various business categories. Thus, for example, the category "Grocery Store" was noted to have "a wide selection of goods," "shopping carts," and a "check-out counter," while the category "Confectionary Store" was perceived to have "glass displays," "smell good," and be located in "small buildings." These attribute differences are concrete and easily identified, much as would be expected if the categories "Grocery Store" and "Confectionary Store" are members of the basic taxonomic level in the mind of the retailers in our sample.

#### THE INFLUENCE OF COGNITIVE TAXONOMIES ON RETAIL COMPETITIVE STRATEGY: SOME GENERAL PROPOSITIONS

Earlier we raised the issue of how retailers scan the environment and engage in the firm-by-firm attribute comparisons necessary to pursue a strategy

of enterprise differentiation. We argued that because of cognitive limitations, making all possible comparisons among individual firms is too psychologically unwieldy to be of much use on a day-to-day basis. At the same time, we noted the desirability of using a mental classification scheme to simplify information-processing during competitive scans. Both cognitive theory and the initial results of our own research investigation give some indication that such schemes are, in fact, a component of a retailer's conceptual understanding of the business environment. It remains to discuss more specifically the influence of cognitive taxonomies on retail competitive strategy. We advance three general propositions.

Proposition 1: Retail decision-makers conceive of competitive strategy primarily at intermediate levels of their taxonomic understanding of the environment.

This argument follows directly from the suggestion that middle levels of a cognitive taxonomy are more informative than others. In our derived taxonomy in Figure 3, we posited that Level 3 or 4 provide more useful and informative categories of businesses because of clearer differentiations among them. Following this line of reasoning, we would expect that decision-makers conduct their competitive strategy formulation primarily at these levels of generalization. If so, two fundamental aspects of competitive strategy would be affected.

First, a retailer's definition of his/her own business would take place using middle taxonomic groupings. Abell (1980) has pointed to the importance of business definition in the formulation of strategy by noting that before any strategy is set, a decision-maker must have some "concept" of the business the firm is attempting to conduct. Restated in the terminology of the present analysis, a decision-maker must place his/her own business within the context of his/her cognitive taxonomy of the retailing industry. But at what level?



Does, for example, a retailer selling foodstuffs to consumers consider the business to be "retailing," "goods retailing," "selling groceries," "quick stop shopping," or "quick stop shopping with gasoline service"? Because of the class inclusion relations implied in a taxonomic structure, all such definitions could theoretically apply to a business. However, our analysis suggests that middle level definitions are used most frequently.

Second, once a retailer places his/her own business in a middle level category, it is likely that scans of other businesses in the environment will be focused primarily upon those within that middle category (and, of course, it's subcategories). This implies, for example, that if the business is defined as a "Grocery store" the decision-maker will concentrate his/her firm-by-firm attribute comparisons on only those businesses subsumed by this category label (thus, convenience marts, supermarkets, etc.). Less attention should be given to members of alternative middle level categories (such as taverns or confectionary shops). In this way, the use of an implicit categorization scheme permits the retailer to simplify environmental scanning by focusing monitoring resources on businesses in the same category. It follows as well that any competitive moves will be aimed primarily at counter-int the tactics of firms within the same category rather than firms in categories not scanned. Of course, any shift in business definition would have implications for both environmental scanning and the identification of strategic alternatives.

Proposition 2: Within a category, retail decision-makers focus competitive strategy primarily upon members of businesses that are most similar to their own.

It was suggested that not all category members are considered equally representative of category membership, with some being considered more typical than others. Table 1 provides evidence for this assertion in retail taxonomies.

Although Proposition 1 states that competitive strategy is focused upon firms considered to be in the same category as the decision-maker's own business, the varying degrees of representativeness of category members makes it psychologically inefficient to continually focus upon all category members with equal degrees of attention. It is tempting to posit that decision-makers resolve this issue by monitoring closely only those businesses that are most representative of the category, regardless of how similar such businesses are to his/her own. However, the evidence we cited above indicates a general tendency might exist for retailers to consider their business to be the most representative of the category. We suggest that retailers use their own business definition as a "cognitive reference point" (Rosch, 1975) and focus scanning and competitive strategy upon those category members most similar to themselves. Thus, for example, if the decision-maker has defined his/her business as a "Grocery store," it can be expected that monitoring and strategy within this category will be centered upon those subtypes of grocery stores most closely resembling that of the decision-maker's own. In this way, business definition acts to further reduce the potential set of businesses that demand attention.

Proposition 3: Changes in retail business definition can be viewed as creative recategorizations of the business via vertical shifts to an alternative level in a cognitive taxonomy, horizontal shifts along the same level, or the creation of new categories altogether.

Retail competitive strategy is a result of scanning and interpreting information from the environment in a creative, problem-oriented way (e.g., Day, 1984). During such problem-solving, a retailer's cognitive categorization scheme can act as both an inhibiting factor in the generation of unique approaches to the business as well as a source of much creative inspiration. On the one hand, once a business is defined in the mind of the retailer, at

whatever taxonomic level, the focus of attention is relatively locked in by the cognitive structuring effect of the business category so defined. This structure provides the foundation upon which much of the environment is understood. Since new information about changes in the environment is interpreted from the perspective of a current business definition, the categorization scheme acts as a subtle filtering device which removes anomalous data. A certain degree of cognitive inertia is thus to be expected because of the fixation on a particular business definition at a particular point-in-time.

On the other hand, cognitive taxonomies develop over extended periods of time and contain much of what is important to know about a particular business environment. By actively using the entire array of conceptual knowledge at his/her disposal, the retail decision-maker can gain creative insights into alternative ways of structuring the business to exploit profitable market opportunities. The motivation to look beyond an immediate business definition might come from events in the marketplace, from market data, from the suggestions of an expert consultant, or simply from personal reflection. However, because of the nature of mental categorization schemes, when such creative recategorizations do, in fact, happen, they are likely to take one of three forms.

First, the decision-maker might shift the definition of the business to a higher level in the taxonomic structure, thereby opening up the business to attribute comparisons with a larger set of other firms (and also to a greater number of business opportunities). Although it focuses upon a business not typically considered "retail," Levitt's (1975) analysis of the downfall of U.S. passenger railroads is particularly illustrative of the possibilities inherent in a vertical recategorization. Levitt argues that one problem at the time was the fact that railroad executives defined their business in a very limiting way: as a "railroad" rather than as a "transportation" company. In terms of the present analysis, railroad executives were psychologically



constrained at one level of their cognitive taxonomy. If they had been able to shift their thinking to a more general taxonomic level, comparisons with a new set of alternative businesses could have been made (e.g., with airlines and bus companies), possibly with the result of a fresh look at profitable opportunities. Creative recombinations of the attributes of their business might then have been suggested.

Second, business definition can change horizontally along a taxonomic dimension. Using Figure 3 once again, such a recategorization would be apparent if an owner who defines his business as an "Oriental Food Store" begins to reconsider this classification and shifts the definition to the category "Supermarket." Again, implicit contrasts with a new set of business firms could then take place.

Finally, entirely new conceptual categories can be invented by creatively recombining the attributes of different existing categories of businesses. A good example of such innovation is evident in the current restaurant business in Los Angeles, California. An article by Charles Keely in the October, 1985 issue of American Way magazine describes two of the most popular restaurants in town as being renowned for their creative combinations of ethnic dining: La Petite Chaya, serving "Franco-Japanese" cuisine, and Chaya Brasserie, noted for it's "Japanese-Italian-Californian" selections. In terms of the present analysis, "French," "Japanese," and "Californian" restaurants could qualify as members of the more general category of "Ethnic Restaurants." The creative insight exhibited by the owners of these two restaurants was the intuitive leap of faith that a combination of various attributes of these subcategories would prove profitable in the long-run. Although the initial resistance to thinking in such innovative ways is great (one owner noted that, "People said we were crazy. Stupid, maybe."),

recombinations of attributes of this sort will lead to permanent placement in a conceptual scheme if they prove successful enough for others to imitate them, thus becoming legitimate cognitive categories in themselves.

### SUMMARY

We have suggested in this paper that retail decision-makers are faced with complex information-processing demands in pursuing a strategy of enterprise differentiation. The demands stem primarily from the necessity of a constant re-evaluation of the relationship between the decision-maker's own business and others in the environment. We have argued that the information-processing load involved in this re-evaluation is reduced by organizing the multitude of businesses into conceptual categories based upon firm similarities and differences. Using grouping taxonomies permits the retailer to focus attention only upon categories that are of strategic relevance to his/her own.

Although our arguments have been heavily oriented toward a psychological analysis of competitive strategy, it is important to note that there exist parallels in the strategy literature that draws more heavily from the economic sciences. Of particular importance in this regard are the arguments by some theorists (e.g., Porter, 1980; McGee & Thomas, 1985) that a level of analysis between the aggregate industry and the individual firm is necessary to explain the competitive forces in an industry. In arguing that the industry level is much too broad to completely explain and/or describe firm competition, these authors have advocated the use of an intermediate level of analysis clustering firms into "strategic groups" based upon similarities in business strategies. Approaching the problem from a psychological perspective, we have argued that firm-by-firm analyses are pragmatically impossible for the decision-maker, and global categories of businesses such as "retailing" are too general to be of



much use in sorting out environmental complexity. We have suggested that decision-makers conceive of strategy by using intermediate levels of business aggregation that provide useful information about the differences among firms.

The principal difference between our arguments and those in more popular approaches to competitive strategy thus center upon our psychological orientation. We feel that an analysis of decision-maker perceptions are important for at least two reasons. At minimum, an understanding of how retailers conceptualize their competitive environments is important as an aid to devising analytic models of firm competition. Since a principal goal of such models is to help decision-makers formulate competitive strategy, knowing the psychological rules which structure a decision-makers understanding of the environment will help to modify analytic models to fit with the retailer's own conceptual scheme. More importantly, however, knowing how decision-maker's conceptualize their competitive environments will likely prove a useful source of information about the competitive forces in those environments. By sampling the conceptual schemes of industry participants and combining such schemes with those that are formulated on the basis of more analytic grounds, it should be possible to "triangulate" on the "true" competitive groupings of firms, and thus achieve a much more accurate description of the industry as a whole. Although at this point the methods and theories of the analytic approach are more developed, we have tried in the present paper to provide the groundwork for equally useful developments in the measurement and theory of cognitive classification schemes.

### References

- Abell, D. F. Defining the business: The starting point of strategic planning. Englewood Cliffs, N.J.: Prentice-Hall, 1980
- Day, G. S. Strategic market planning: The pursuit of competitive advantage. St. Paul, MN: West Publishing Co., 1984
- Dess, G. G. & Davis, P. S. Porter's generic strategies as determinants of strategic group membership and organizational performance. Academy of Management Journal, 1984, 27, 467-488.
- Dougherty, J. W. D. Saliency and relativity in classification. American Ethologist, 1978, 66-80.
- Duncan, D. J., Hollander, S. C., & Savitt, R. Modern retailing management: Basic concepts and practices. Homewood, IL: Irwin, 1983 (10th Edition).
- Garner, W. R. Aspects of a stimulus: Features, dimensions, and configurations. In Rosch, E. & Lloyd, B., Cognition and categorization. Hillsdale, NJ: Erlbaum, 1978.
- Hawes, J.M. & Crittenden, W. F. A taxonomy of competitive retailing strategies. Strategic Management Journal, 1984, 5(3), 275-289.
- Henderson, B. Henderson on strategy. Cambridge, MA: Abt Books, 1979.
- Hofer, C. W. Toward a contingency theory of business strategy. Academy of Management Journal, 1975, 18, 784-810.
- Kahneman, D. Attention and effort. Englewood Cliffs, NJ: Prentice-Hall, 1973.
- Kempton, W. Category grading and taxonomic relations: A mug is a sort of a cup. American Ethologist, 1978, 44-65.
- Levitt, T. Marketing myopia. Harvard Business Review, September-October, 1975.
- March, J. G., & Simon, H. A. Organizations. New York: Wiley, 1978.
- McGee, J., & Thomas, H. Strategic groups: Theory, research, and taxonomy. Strategic Management Journal, in press.
- Mervis, C. B., Catlin, J., & Rosch, E. Relationships among goodness-of-example, category norms, and word frequency. Bulletin of the Psychonomic Society., 1976, 7, 283-284.
- Porter, M. E. Competitive strategy: Techniques for analyzing industries and competitors. New York: Free Press, 1980.
- Posner, M. I., & Keele, S. K. On the genesis of abstract ideas. Journal of Experimental Psychology, 1968, 77, 353-363.
- Rosch, E. Cognitive reference points. Cognitive Psychology, 1975, 7, 532-547.

- Rosch, E. Principles of categorization. In Rosch, E., & Lloyd, B. (Eds.), Cognition and categorization. Hillsdale, NJ: Erlbaum, 1978.
- Rosch, E., & Mervis, C. B. Family resemblances: Studies in the internal structure of categories. Cognitive Psychology, 1975, 7, 573-605.
- Rosch, E., Mervis, C. B., Gray, W. D., Johnson, D., & Boyes-Braem, P. Basic objects in natural categories. Cognitive Psychology, 1976, 8, 382-439.
- Rosch, E., Simpson, C., Miller, R. S. Structural bases of typicality effects. Journal of Experimental Psychology-Human Perception and Performance, 1976, 2, 491-502.
- Rosch, E., & Lloyd, B. Cognition and categorization. Hillsdale, NJ: Erlbaum, 1978.
- Tversky, A. Features of similarity. Psychological Review, 1977, 84, 327-352.
- Tversky, A., & Gati, I. Studies of similarity. In Rosch, E., & Lloyd, B (Eds.), Cognition and categorization. Hillsdale, NJ: Erlbaum, 1978.
- Tyler, S. Cognitive anthropology. New York: Holt, Rinehart, and Winston, 1969.
- Zadeh, L. A. Fuzzy sets. Information and Control, 1965, 8, 338-353.

Figure 1

The Enterprise Differentiation Cycle

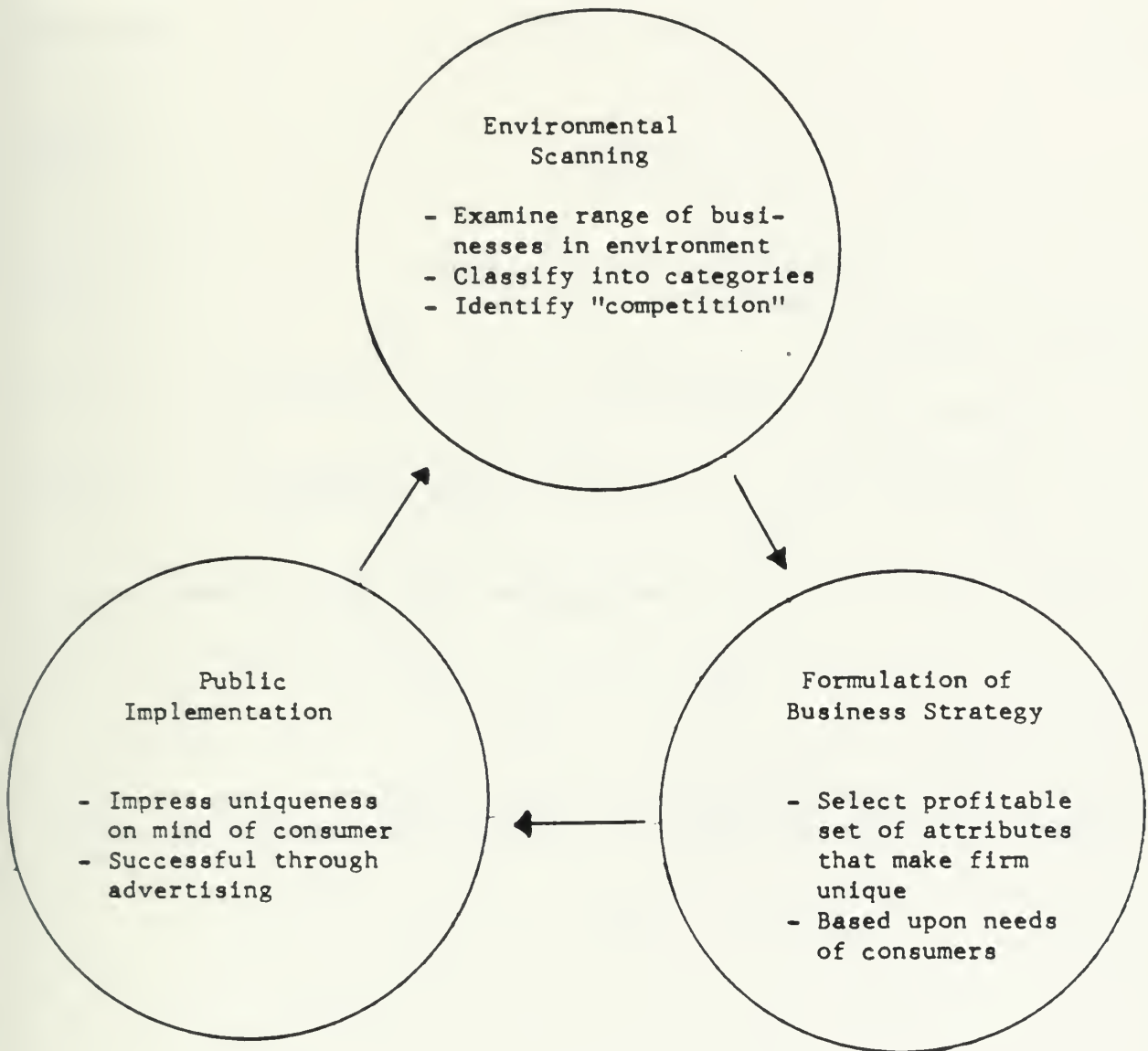
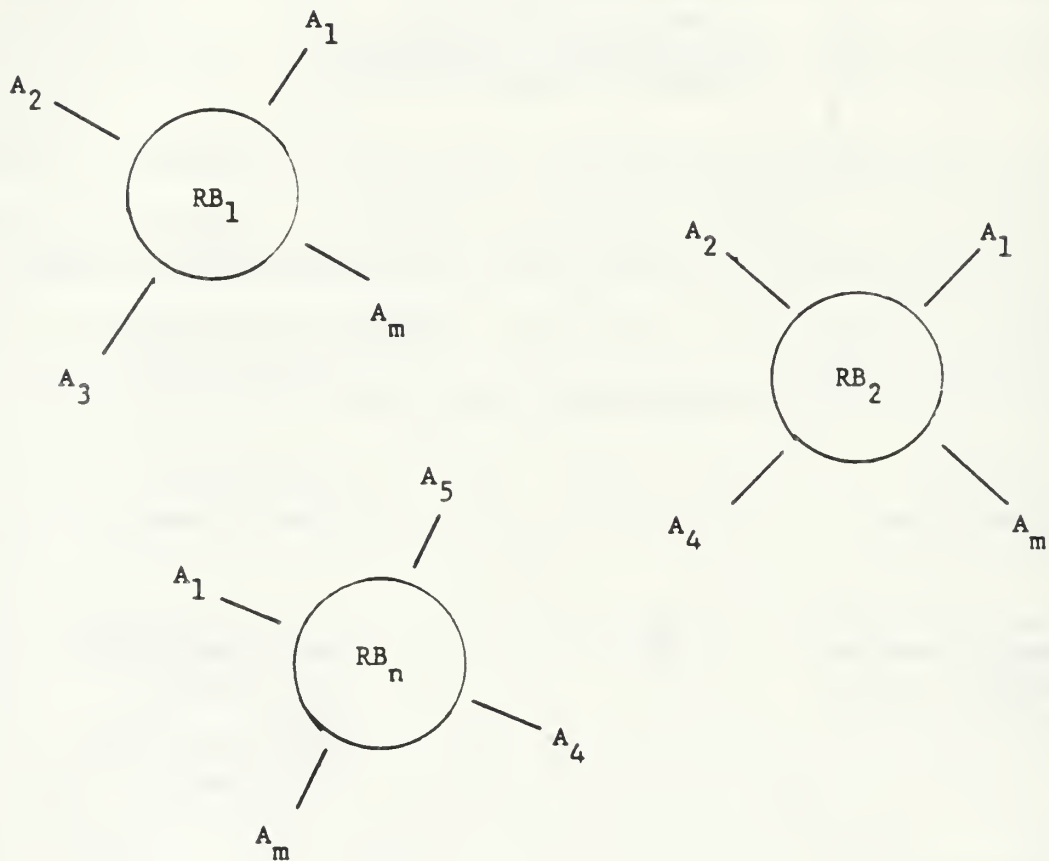




Figure 2

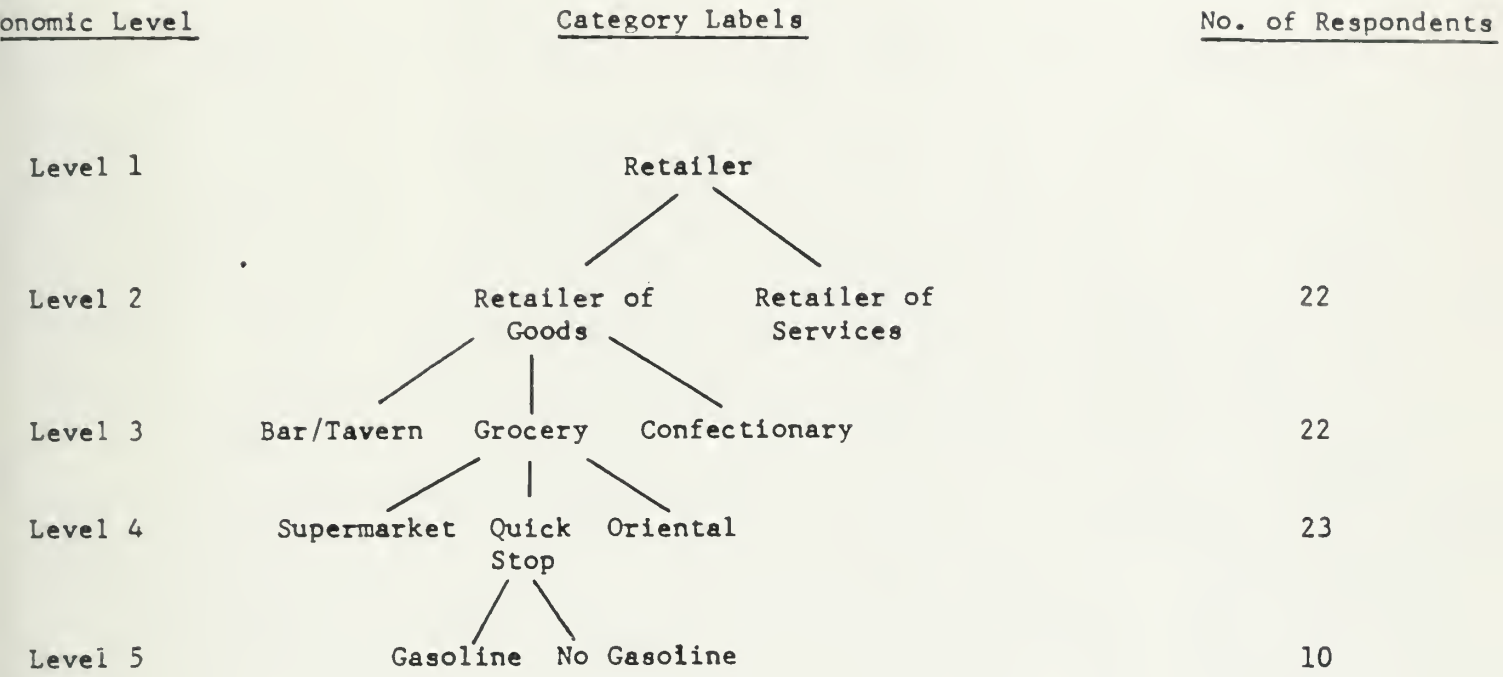
Retail Businesses as Clusters of Attributes<sup>\*</sup>



<sup>\*</sup> Note, any Retail Business ( $RB_i$ ) can be considered a cluster of attributes ( $A_1, \dots, A_m$ ). Businesses can be compared on the basis of overlapping attributes, with some being shared by more than one business (e.g.,  $A_1$ ) and some being unique (e.g.,  $A_5$ ). The greater the degrees of overlap, the more similar the businesses being compared. See text for further discussion.

Figure 3

Cognitive Subtaxonomy of Retail Businesses  
in Champaign-Urbana, Illinois\*



\* Note, at Level 3 respondents listed 25 business categories, only three are shown. At Level 4, nine categories were uncovered, again only three are shown.

Table 1

Means, Medians, and S.D.'s of Ratings of Category Representativeness  
for Twenty-five Categories of Retail Businesses

(Based upon N = 25)

Category Name	Mean	Median	S.D.
Department Store	5.9	6.3	1.4
Book	5.8	6.0	1.2
Record	5.7	5.9	1.3
Drug	5.7	5.9	1.3
Variety	5.6	5.8	1.4
Hardware	5.6	5.8	1.4
Materials/Supply	5.6	6.2	1.5
Gift	5.6	5.5	1.2
Sporting Goods	5.5	5.6	.9
Shoe	5.5	5.8	1.4
Clothing	5.5	5.9	1.6
Grocery	5.4	5.7	1.7
Card	5.4	5.3	1.5
Jewelry	5.4	5.7	1.5
Electronics	5.3	5.6	1.3
Novelty	5.1	5.1	1.5
Confectionary	5.1	5.0	1.5
Furniture	5.0	5.5	1.8
Poster/Art	4.9	4.4	1.7
Housewares	4.9	5.0	1.7
Fabric	4.8	4.5	1.7
Automobile	4.7	4.0	1.6
Gasoline	4.4	4.3	2.3
Bar/Tavern	4.0	3.5	2.0
Real Estate	3.4	2.8	2.4











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